Remarks:

This amendment is submitted in an earnest effort to advance this case to issue without delay.

The claims have been amended to overcome the §101 and formal objections and rejections.

Main claim 21 has been amended to define the invention with greater particularity over the art.

The amended claim describes a printing process for obtaining patterns of nanometer and micrometer dimensions on a substrate. The process, as shown in the drawing, comprises the steps of

forming a solution or suspension of a liquid and a printing material,

applying a layer of the solution or suspension to the substrate,

positioning, without applying pressure, of a stamp provided with relief patterns at a distance of 0 nm to 500 μm from the substrate with the relief patterns in contact with the layer of the solution or suspension,

evaporating the liquid from the solution or suspension from between the substrate and the stamp so as to draw the suspension or solution by capillarity to the relief patterns and

deposit the material on the substrate in accordance with the relief patterns of the stamp, and

thereafter separating the stamp from the substrate.

The process of this invention therefore exploits the capillarity of the solution/suspension so that, as the liquid is evaporated out of it, it moves under the relief pattern of the stamp and forms a pattern. In other words, the relief pattern serves to concentrate the solution/suspension. This way it is possible to produce an printed pattern that is actually smaller than the raised portions of the stamp, as the capillarity of the solution/suspension will draw in the solid phase.

The two cited references, Deshpande and Chou disclose a process that uses a polymer deposited on a surface. The polymer is heated to soften it. There is a solvent that is initially used to deposit the layer of polymer on the surface of the substrate, and the solvent is indeed evaporated, but not from between a stamp and the substrate so as to exploit the capillarity of the solution. Once the solvent is gone, the polymer layer thus formed is heated to liquefy it and then the mold is pressed into it. The polymer is then cooled and the mold is stripped off. Even in the system where a layer of viscous fluid, not a solvent of the polymer, is used between the mold and the solid polymer film, this viscous liquid does not dissolve the polymer.

The difference between the cited art and the instant invention is substantial, in that the prior art allows a mold to be pressed into a heat-softened polymer layer to impart its shape to the layer. With the instant invention a solution/suspension between and in contact with both the stamp and the substrate is evaporated so that the solution/suspension draws itself into the regions were the stamp and substrate are closest and, when all the liquid is evaporated out of the solution/suspension, the dissolved or suspended phase is left in a much greater thickness or concentration in these regions than elsewhere. Nothing like this is suggested in the applied art.

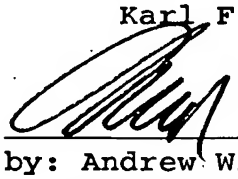
For these reasons amended claim 21 is clearly allowable over the cited art.

With respect to claim 22, the art shows that chlorobenzene is used to prepare a polymer film. The solvent is evaporated and a viscous oil is applied that does not dissolve the polymer deposited by evaporation of the chlorobenzene. In fact the chlorobenzene has no part in the process, which is carried out at 120°C to 160°C. With the instant invention the evaporating liquid is a critical part of the process that concentrates the suspended or dissolved phase of the suspension/solution.

For the reasons advance above all the claims in the case are clearly in condition for allowance. Notice to that effect is earnestly solicited.

If only minor problems that could be corrected by means of a telephone conference stand in the way of allowance of this case, the examiner is invited to call the undersigned to make the necessary corrections.

Respectfully submitted,
Karl F. Ross P.C.



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Enclosure: Substitute Abstract